



Mammary fibroadenoma in a heifer

Stéphane Thibault, Igor Mikaelian, Pascal Dubreuil, Richard Drolet, Yvon Couture

A 7-month-old, Holstein heifer had a small mammary mass located on the right caudal quarter of the mammary gland. Antibiotic therapy was initiated, but the mass continued to grow slowly over the next 4 mo, at which time it measured $12 \times 7 \times 7$ cm. The animal was referred to the Large Animal Clinic, Faculty of Veterinary Medicine, University of Montreal, where the mass was surgically removed. At surgery, the tumor occupied most of the implicated quarter and protruded extensively into the lactiferous sinus. It was well circumscribed, firm, and composed of multiple and small whitish nodules, ranging from 0.5 mm to 2 mm in diameter, separated by thick fibrous septa.

Microscopically, the mass was well demarcated and unencapsulated. It consisted of multiple lobules of mildly dilated ductal structures lined by a well differentiated epithelium and surrounded by whorls of an abundant fibrovascular stroma (Figure 1). Ductal epithelium was composed of a suprabasal layer of flattened myoepithelial cells covered by a single row of well differentiated cuboidal to columnar epithelial cells (Figure 1, inset). A few ductal structures were mildly distended by a brightly acidophilic amorphous material and the cytoplasm of the epithelial cells contained numerous hyaline droplets. Mitoses were rare, and there was no evidence of necrosis or invasion. The stroma consisted of spindle cells and abundant mature collagen, diffusely infiltrated by a few eosinophils, lymphocytes, and plasma cells. Based on the fibrostromal and epithelial components, we diagnosed this tumor as a mammary fibroadenoma.

A mild swelling persisted for a few days after surgery. At the onset of her 1st lactation, 20 mo later, the heifer exhibited an almost agalactic right caudal quarter and was eliminated from the herd.

Fibroadenomas are the most common benign mammary tumors of women and rats, but they have been reported only once in cattle (1). Rats affected by this type of tumor are usually old, whereas affected women are usually young adults. The only other case described so far in the bovine species (1) was also in a very young animal (4-month-old at onset). The histological differential diagnosis of mammary fibroadenomas includes fibroepithelial hyperplasia (fibroadenomatous hyper-

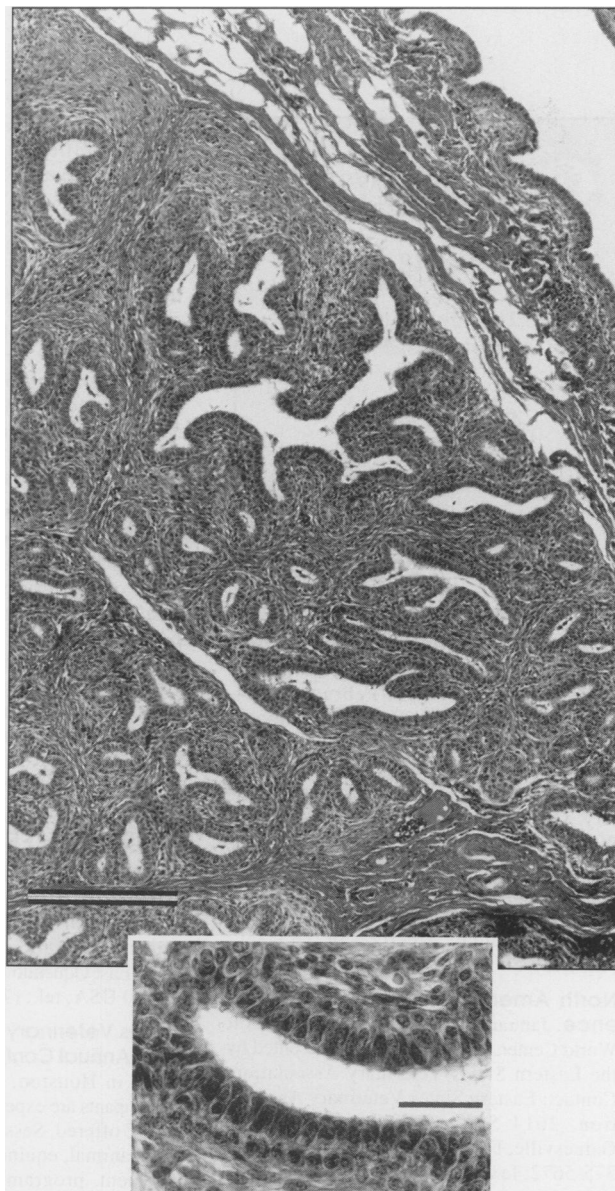


Figure 1. Mammary tumor from a Holstein heifer. Multiple coalescing lobules formed by well differentiated ductal structures and abundant stroma are separated by thick connective fibrous tissue. Hematoxylin-phloxine-saffron. Bar = 500 μ m.

Inset: closer view showing the typical double-layered appearance of the ductal epithelium. Bar = 60 μ m.

plasia, mammary hypertrophy), a condition found mainly in cats (3). This latter condition, although very similar histologically to the fibroadenoma, is considered to

Département de pathologie et de microbiologie (Thibault, Mikaelian, Drolet), Département de sciences cliniques (Dubreuil, Couture), Faculté de médecine vétérinaire, Université de Montréal, 3200 Sicotte, C.P. 5000, Saint-Hyacinthe, Québec J2S 7C6.

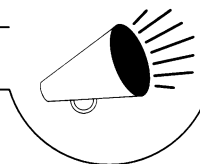
represent a hormone-dependent dysplastic change that often occurs as multiple masses that may spontaneously regress.

Mammary fibroadenoma should be included on the list of differential diagnoses for a solitary, slow growing, mammary mass in heifers. Differential diagnoses for such lesions in the udder include mastitis, abscess, hematoma, trauma followed by scarring, epithelial and mesenchymal tumors of the mammary gland, and lymphoma.


References

1. Mina RB, Uchida K, Sakumi A, *et al.* Mammary fibroadenoma in a young Holstein cow. *J Vet Med Sci* 1994; 56: 1171-1172.
2. Remadi S, Ismail A, Karpuz V, Finci V, Zacharie S, Vassilakos P. Fibro-adénome cellulaire (juvénile) du sein. Étude anatomoclinique et immunohistochimique de 7 cas. *Ann Pathol* 1994; 14: 392-397.
3. Hayden DW, Johnston SD, Kiang DT, Johnson KH, Barnes DM. Feline mammary hypertrophy/fibroadenoma complex: Clinical and hormonal aspects. *Am J Vet Res* 1981; 42: 1699-1703.

COMING EVENTS



ÉVÉNEMENTS À VENIR



**CVMA Conventions/
Congrès de l'ACMV**

1998
50th Anniversary/50^e anniversaire
Toronto, Ontario
July/juillet 8-11

1999
Calgary, Alberta
July/juillet 28-31

2000
Saint John, New Brunswick
July/juillet 5-8

JANUARY/JANVIER 1998

International Veterinary Acupuncture Society Certification Program. Four modules: January 7-11, February 9-14, March 23-28, April 27-30, in Calgary, Alberta. Sessions: traditional chinese medicine, Western acupuncture, general terms, miscellaneous areas, and a practical laboratory. Open only to licensed veterinarians. Worth 100 CE hours. Participants are eligible to take certification examination following course. Contact: Colleen MacDougall, Alberta Veterinary Medical Association, 100, 8615-149 Street, Edmonton, Alberta T5R 1B3; tel.: (403) 489-5007; fax: (403) 484-8311.

North American Veterinary Conference. January 10-14, 1998 at the Marriott World Center, Orlando, Florida. Presented by the Eastern States Veterinary Association. Contact: Eastern States Veterinary Association, 2614 S.W. 34th Street, Suite 4, Gainesville, Florida 32608 USA; tel.: (352) 375-5672; fax: (352) 336-6827.

British Columbia Veterinary Medical Association Ski & Continuing Education — 25th Anniversary Meeting. January 15-17, 1998 at Silver Star Resort, Vernon, BC. Contact: Ilona Rule, Director of Member Services, British Columbia Veterinary Medical Association, 1200 West 73rd Street, Suite 155, Vancouver, British Columbia V6P 6G5; tel.: (604) 266-3441; fax: (604) 266-8447.

International Embryo Transfer Society Annual Meeting. January 18-20, 1998 at

Marriot Copley Place, Boston, Massachusetts, USA. Satellite Symposium January 21. Contact: Dr. James Robl, 1998 IETS Program Chair, Holdsworth Way, Paige Laboratory, University of Massachusetts, Amherst, Massachusetts 01003-6410 USA; tel.: (413) 545-2427; fax: (413) 545-6326; e-mail: IETSJR@VASC1.UMASS.EDU.

Mid-Winter Conference '98. January 21-25, 1998 at Rimrock Resort Hotel, Banff, Alberta. Contact: Colleen MacDougall, CAE, Director, Member Services, Alberta Veterinary Medical Association, #100, 8615-149th Street, Edmonton, Alberta T5R 1B3; tel.: (403) 489-5007; fax: (403) 484-8311.

Ontario Veterinary Medical Association Annual Conference. January 29-31, 1998 at Westin Harbour Castle, Toronto, Ontario. Scientific program: bovine, equine, small animal, practice management, regulatory program, and product exhibits. Special registration fees for out-of-province delegates. Contact: Ineke Vanden Beukel, Delegate Coordinator, Ontario Veterinary Medical Association, 245 Commercial Street, Milton, Ontario L9T 2J3; tel.: (905) 875-0922; fax: (905) 875-0958.

FEBRUARY/FÉVRIER 1998

Western Veterinary Conference. February 1-5, 1998 in Las Vegas, Nevada. Contact: Dr. Kenneth Weide, Executive Director, Western Veterinary Conference, 2425 East Oquendo Road, Las Vegas, Nevada 89120 USA; tel.: (702) 739-6698.

Texas Veterinary Medical Association 95th Annual Conference. February 12-15, 1998 in Houston, Texas. Three thousand participants are expected. More than 200 hours of CE offered. Sessions: companion animal, food animal, equine, exotics, practice management, programs for veterinary technicians. Contact: Texas Veterinary Medical Association, 6633 Highway 290 East, Suite 201, Austin, Texas 78723 USA; tel.: (512) 452-4224; fax: (512) 452-6633.

Lectures Offered by Ottawa Academy of Veterinary Medicine. Anaesthesia: February 17, 1998 by Dr. Nancy Brock, Veterinary Anaesthesia Northwest, Grantham's Landing, British Columbia; **Abdominal Surgery:** March 19, 1998 by Dr. Steve Birchard, Ohio State University, Columbus, Ohio; **Small Animal Gastroenterology:**

April 23, 1998 by Dr. Michael Leib, Virginia Tech University; **Feline Medicine:** (no cost) May 7, 1998 by Dr. Gary Norsworthy, Acres North Animal Hospital, San Antonio, Texas. All lectures held at Talisman Hotel, Ottawa, Ontario. Contact: Ottawa Academy of Veterinary Medicine, c/o Dr. Susan Kilborn, 125 Owl Drive, Ottawa, Ontario K1V 9J5; tel.: (613) 736-7673; fax: (613) 736-9502.

25th Annual Conference of the Veterinary Orthopedic Society. February 21-28, 1998 at Snowmass, Colorado. Contact: Daman-Nelson Travel, 2 Harrison Street, San Francisco, California 94105 USA; tel.: (800) 899-7669, (415) 247-5500; fax: (415) 247-5510.

Pancommonwealth Veterinary Conference. February 22-27, 1998 in Bangalore, India. Full scientific program and postconference tour. Contact: Dr. Bert Stevenson, Centre for Animal & Plant Health, 93 Mount Edward Road, Charlottetown, PEI C1A 5T1; tel.: (902) 368-0950; fax: (902) 368-0960.

MARCH/MARS 1998

XIth DVG — Congress on Avian Diseases. March 4-7, 1998 in München, Germany. Topics: pigeons, clinical and microbiological laboratory diagnostics in avian practice. Deadline: October 15, 1997. Languages: German and English. Contact: Prof. Dr. J. Kösters, Institute of Avian Diseases, Ludwig-Maximilians-University Munich, Veterinärstrasse 3, D-85764 Oberschleissheim; tel.: +89-315619-70 or -80; fax: +89-315619-82.

American Animal Hospital Association Annual Conference. March 14-18, 1998 in Chicago, Illinois. Contact: Chuck Potter, Meetings Manager, American Animal Hospital Association, P.O. Box 150899, Denver, Colorado 80215-0899 USA; tel.: (303) 986-2800; fax: (303) 986-1700.

APRIL/AVRIL 1998

Atlantic Provinces Veterinary Conference. April 24-26, 1998 at Holiday Inn Harbourview, Dartmouth, Nova Scotia. Contact: Dr. Bert Stevenson, 93 Mount Edward Road, Charlottetown, PEI C1A 5T1; tel.: (902) 368-0950; fax: (902) 368-0960; e-mail: stevensonr@em.agr.ca.